

The American STATISTICIAN

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THE BUSINESS AND ECONOMIC STATISTICS SECTION

The American STATISTICIAN

DECEMBER 1951, VOL. V, NO. 5

The news publication of the
American Statistical Association

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Organization of the Business and Economic Statistics (BES) Section during the last two years reflects the increasing interest of many members of the American Statistical Association in the application of statistical techniques to a widening range of business and economic problems. In general terms, the principal functions of the new Section are: (1) to further economic and business research as well as a better understanding among all so engaged, and (2) to provide a continuing opportunity through meetings and publications for all interested persons to keep abreast of statistical developments in these fields, and particularly to contribute their thoughts and criticisms to current statistical knowledge.

Earlier this year nearly half of the entire national ASA membership of well over 4,000 persons designated the BES as covering a field of particular interest to them. In several of the larger metropolitan ASA Chapters, the proportion of BES members is still larger, and in some instances local chapter groups, primarily interested in the business and economic statistics field, have been formed. Closer analysis reveals that substantial numbers of BES members are (1) serving as business statisticians or economists in private industrial, trade and service companies, (2) employed by federal, state and local governments in various statistical capacities, (3) conducting business and economic research at universities and colleges, or teaching related subjects, and (4) engaged in statistical analysis for trade associations, labor unions, agricultural organizations, private consulting firms, and similar groups.

A general program has been drawn up by the Section committees to meet as fully as possible the requirements of these members, having many overlapping but at the same time somewhat varied interests. Subjects to be given special attention in BES meetings and publications include the following: Internal company administrative statistics; general economic statistics; statistical analysis of the relations between economic, business and related factors; criticism and re-formulation of stated economic principles in light of statistical analysis; interpretation of economic and business statistics; methods of presentation of statistical data and the results of analysis; and forecasts of general business activity, company sales, and allied measures.

In line with the foregoing general functions and program objectives, the sessions sponsored by the BES at the annual meetings December 27th-29th in Boston have been planned to: Present some of the most recent statistical developments and problems in agriculture, business finance, consumer credit, construction, monetary policy, national productivity, and index numbers; review and appraise the statistical programs set up by government defense agencies; explore techniques for projecting or forecasting trends in population, common stock values, and general business activity; describing the intra-company statistical programs of several large business organizations; and evaluate statistical standards as currently practiced in business and government.

CONTINUED ON PAGE 13

NEWS

Committee on statistics in the physical sciences—New York regional meeting—New Associations—Awards and fellowships available—UN notes—New publications—ECA technical assistance mission

ASA Announces Committee on Statistics in the Physical Sciences

With the increasing use of probability and statistical methods by physical scientists, the membership and activity of the American Statistical Association in the field have expanded slowly during the past decade. At the same time, more and more persons working in the physical sciences have become interested in the application of statistical method and many of their scientific societies have organized sessions which deal with statistical applications. Expanded discussion and development of such applications will clearly benefit physical scientists and statisticians alike. For this reason the Association has set up a Committee on Statistics in the Physical Sciences for the express purpose of planning special sessions, joint meetings and other cooperative undertakings.

Because of the diverse fields of specialization in basic and applied physical sciences, this Committee will necessarily have to operate through small working groups and subcommittees. The Committee itself will be concerned basically with advising the Association on general policy, and with assisting and advising its working groups on policy, on the selection of statistical problems of importance in special fields, and with the location of individuals interested in specialized areas willing to work on specific programs of other projects. The following Committee members have been announced by Lowell J. Reed, the President of the Association: E. U. Condon, Bessie B. Day, Daniel B. DeLury, W. Edwards Deming, Churchill Eisenhart, Howard A. Meyerhoff, William R. Pabst, Jr., Eugene W. Pike, Louis N. Ridenour, C. G. Rossby, Harlow Shapley, Hugh M. Smallwood, Otto Struve, E. Bright Wilson, Jr., W. J. Youden and John W. Tukey, *Chairman*.

Additional members are being appointed to provide representation from other branches of physical science.

Economic Association Formed in Colombia

A group of professional economists in Colombia have organized the Colombia Economic Association. The secretary, Miguel Fadul, announces the election of the following officers:

President: Hernan Echavarría Olozaga
First Vice-President: Leopoldo Lascarro
Second Vice-President: Antonio García
Members of Council: Jorge Franco
Leonel Torres
Miguel Fadul

New York Chapter Plans Regional Meeting on United Nations Statistical Activities

The New York Chapter has invited the chapters at Central New Jersey, Connecticut, and Albany to join it in a meeting on Friday, February 15, 1952, at 8:00 P.M., which will discuss in detail the statistical work of the United Nations. The program is as follows:

Chairman:

Vergil D. Reed, Vice-President of J. Walter Thompson Company, formerly Assistant Director of the Bureau of the Census.

Speakers:

William R. Leonard, Director of Statistical Office

Forrest E. Linder, Chief, Demographic and Social Statistics Branch

J. B. D. Derksen, Chief, National Income Statistics and Research

Patrick J. Loftus, Chief, Economic Statistics

Discussion:

Clyde V. Kiser, Milbank Memorial Fund

Daniel Creamer, National Bureau of Economic Research

Norris O. Johnson, National City Bank of New York

Pakistan Statistical Association Formed in Lahore

The first Pakistan Statistical Conference was held in February 1950 under the Presidentship of the Honorable Fazl-ur-Rahman, Minister for Education and Commerce of the Government of Pakistan. About one thousand persons attended with delegates from all parts of Pakistan. On the afternoon of the first day of the meeting, a special conference was held at which the Pakistan Statistical Association was formed and elected Fazl-ur-Rahman as President. The Vice-Chancellors of Panjab and Dacca Universities were elected as Vice-Presidents and Dr. Sai-ud-Din of Panjab University, Lahore, was elected Secretary. Joint-Secretaries were Abdul Hamid, Director of Statistics, Ministry of Agriculture, Karachi; and Q. M. Hussain, Lecturer, Dacca University. They elected Professor S. A. Hamid (since deceased) as Treasurer.

The newly constituted society set up a Census Advisory Committee to advise the Central Government on census matters. Proceedings and abstracts of the papers given at the sessions are available from the Secretary of the society, Dr. M. Zia-ud-Din, Head of the Statistics Department, University of the Panjab, Lahore.

ECA Technical Assistance Mission

Twenty-two of the leading European industrial statisticians, representing eleven countries, were members of a technical assistance mission which visited the United States from June 28 to August 8, 1951, under sponsorship of the Economic Cooperation Administration. The program of conferences and other activities in this country was arranged by the Office of the Coordinator, International Statistics, Bureau of the Census.

The group spent one month in Washington studying the organization, methods, and program of the Bureau of the Census and other governmental and non-governmental agencies which are working in the field of industrial statistics. This program emphasized the collection, compilation and analytical activities of the Federal Government in the field of industrial statistics, the relationships between private industry and public agencies in the operation of Federal statistical programs and problems relating to the comparability and standardization of international statistics of manufacturing, mining and trade.

Upon completion of its Washington program, the group took a field trip to industrial and commercial centers including Pittsburgh, Akron, Cleveland, Detroit, Buffalo and New York City. This trip afforded the visiting technicians an opportunity to obtain a first-hand account from industrial and trade suppliers and users of data of the cooperation between private industry and governmental agencies in this country. Conferences and round table discussions were held with officials of companies such as the United States Steel Corporation, Goodyear Tire and Rubber Company, Standard Oil Company of Ohio, Howard Whipple Green Company and the Chrysler Corporation.

The program included a visit to the United Nations Statistical Office where members of the group discussed problems relating to the international comparability of industrial and trade statistics and the progress made thus far in achieving this goal.

The principal organizations and agencies in Washington which participated in this program were the Bureau of the Census, Bureau of the Budget, Bureau of Labor Statistics, Bureau of Mines, Office of Business Economics, Bureau of Standards, Economic Cooperation Administration, Council of Economic Advisers, Federal Reserve Board, and the U. S. Chamber of Commerce. A special short course on the tabulation of industrial statistics was given by the International Business Machines Corporation in Endicott, New York.

This visit by European industrial statisticians to the United States was the second phase of a program initiated in Europe in September, 1950, under the auspices of the Organization for European Economic Cooperation. At that time the group held several conferences concerned with major problems of European industrial statistics, especially those compiled by governments, and visited several European countries. Upon their

return to Europe from the United States, the members of this mission will prepare a report summarizing both the European and the American phases of their work. The members of the group have already indicated that the program conducted in this country will provide the basis for the technical and mechanical solutions to numerous problems which confront them.

The American Sociological Society Announces Award for Research

The American Sociological Society will present the Edward L. Bernays Foundation Radio-Television Award to the individual or group contributing the best piece of research on the effects of radio and/or television on American society. The award is a \$1,000 U. S. Government bond, and it will be presented at the Society's annual convention which will be held in September of 1952 at Atlantic City, New Jersey.

The contest is open to social scientists in the United States and abroad and will be governed by the following rules:

Any individual or group wishing to compete for the Award must submit in duplicate a report on the research on or before June 15, 1952.

Both published and unpublished studies may be submitted. Research not fully completed for which a report with preliminary findings is available may be submitted.

Research may cover radio or television or both.

All reports should be submitted as far in advance of the closing date as possible to the Chairman of the Committee of Judges, Professor F. Stuart Chapin, Department of Sociology, University of Minnesota, Minneapolis 14, Minnesota. Inquiries for further information should be sent to Matilda White Riley, Executive Officer of the American Sociological Society, New York University, Washington Square, New York 3, New York.

Frantisek Weyr 1879-1951

The Association reports with regret that it has been informed of the death of Frantisek Weyr, honorary member of the Association. Professor Weyr taught at Masaryk University in Brunn, Czechoslovakia, from 1929 until his death. He was president of the Statistical Office of the Republic of Czechoslovakia and president of the Superior Council of Statistics from 1920 to 1929. He was a member of the International Statistical Institute, the International Institute of Public Law, the International Institute of the Philosophy of Law and Sociology, and the International Institute of Administrative Law.

Professor Weyr wrote extensively in the field of statistics and legislation and was elected to honorary membership in the American Statistical Association in 1926 at the time that he was president of the State Statistical Office of Czechoslovakia.

New Index of Output of Major Consumer Durable Goods

A new monthly index of the physical volume of output of major consumer durable goods for the period since January 1947 has been developed by the Board of Governors of the Federal Reserve System. The consumer durable goods included in the index are passenger automobiles and household goods, comprising carpets, furniture, major appliances, and radio and television.

In administering measures designed to influence national monetary and credit conditions, the Federal Reserve Board has a particular interest in data relating to consumer durable goods. Fluctuations in total consumer purchases of durable goods and in installment credit are largely accounted for by changes in the demand for passenger automobiles and major household goods. The new index of output of these major consumer durables provides a more complete basis than has hitherto been available for analyzing output and distribution changes in this important and volatile sector of the economy.

The index was first published in the October 1951 issue of the *Federal Reserve Bulletin*, with a full description of sources, methods, weighting procedures, etc. and will be published regularly in the Bulletin. The consumer durable index is entirely independent of the Board's regularly published index of industrial production, which covers output of all goods produced at factories and mines and has value-added rather than value-of-finished-products weightings.

MILTON MOSS

Division of Research and Statistics, Board of Governors of the Federal Reserve System

Document Sensing in the Current Population Survey

The Bureau of the Census has formulated plans for converting its monthly Current Population Survey to a document sensing basis as soon as possible. Document sensing has been used by the Canadian government for some time in its labor force surveys and also in its recent Population Census. On the whole, it has proved to be successful as an economy measure.

The principal change in procedure is in the method of recording information on the schedule. Instead of writing entries on the schedule, the enumerator marks an oval corresponding to the appropriate entry in a particular item with a special pen using conductive ink. When schedules marked in this fashion are passed through a special electronic machine, the marks are automatically translated into holes on a punchboard, thus obviating the necessity for manually punching cards. This procedure also materially reduces the amount of precoding of entries required, since the position of the marked oval in a particular schedule item itself conveys the appropriate code.

One of the disadvantages of this procedure is that the machine now available can accommodate document sensing schedules of only limited size (roughly double the area of an ordinary punchcard). As a result, it will be necessary to fill a separate schedule for each person included in the enumeration for the Current Population Survey, instead of enumerating an entire household on one schedule as in the past. However, it is believed that any losses in efficiency due to this factor will be much more than offset by economies achieved in tabulation of the data.

Present plans call for gradual introduction of document sensing in the Current Population Survey after a preliminary period of testing under actual operating conditions. During this testing period, deficiencies in the forms and procedures can be detected, and necessary modifications made.

ROBERT B. PEARL

Population and Housing Division, Bureau of the Census, Department of Commerce

AMONG RECENT STATISTICAL PUBLICATIONS

Social Security Administration, Federal Security Agency

1948 Handbook of Old-Age and Survivors Insurance Statistics

Wage and employment experience of workers in covered employment during 1948 and work history data from 1937, based on a one percent sample of workers with wage credits. The work history data show distributions of workers in covered employment and their cumulative wages in the period 1937-48, classified by age, sex, race, specific years in which wage credits were received, number of quarters of employment, old-age and survivors insurance status as of January 1, 1949, State and last industry. The annual employee data show the number of workers in 1948 and their 1948 wages, classified by age, sex, race, number of quarters with wage credits, last State and each industry in which a covered job was held during the year.

Copies of the 1948 Handbook have been sent to many depository libraries. The supply is limited, but the agency will attempt to fulfill requests from organizations or research workers who have no convenient access to library copies, or requests for separate tables covering specific classifications of the data where these will serve in place of the complete Handbook. Requests should be sent to Mr. O. C. Pogge, Director, Bureau of Old-Age and Survivors Insurance, Social Security Administration, Equitable Building, Baltimore, Maryland.

Office of Business Economics, Department of Commerce

Business Statistics (Biennial Statistical Supplement to the *Survey of Current Business*—1951 Edition)

The basebook to which the 2,600 series regularly carried in the 40-page Monthly Business Statistics Section of the *Survey of Current Business* are keyed. Monthly data for each of these series from January 1947 through December 1950, and annual averages of monthly data from 1935 through 1950. Also contains descriptions and explanations of the series (definitions of the statistical units employed, sources and methods of collection, adequacy of samples, etc.), furnishing the reader with the information essential to proper use of the data. 308 pp.

Available at \$1.50 a copy from Superintendent of Documents, Government Printing Office, Washington 25, D. C. (Not included in the \$3.25 annual subscription to the *Survey of Current Business*)

Bureau of the Census, Department of Commerce

1948 Census of Business—Area Volumes

Final area statistics from the 1948 Census of Business for standard metropolitan areas, cities and counties as well as for the United States, geographic divisions, and States. Separate volumes for retail, wholesale and service trade statistics, as follows:

Vol. III Retail Trade—Area Statistics, 1328 pp., \$7.50
Vol. V Wholesale Trade—Area Statistics, 604 pp., \$4.75
Vol. VII Service Trade—Area Statistics, 1196 pp., \$7.25

Each of these Area Volumes includes a United States summary chapter and separate chapters for each State, the District of Columbia, Alaska and Hawaii. Complete explanations are given of the scope of the census, classification concepts, and related materials. Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Four Subject Volumes from the 1948 Census, now in preparation, will present information on inventories, sales size, credit, merchandise line sales, etc. Two volumes (I and II) will deal with retail trade, one (IV) with wholesale trade, and one (VI) with service trade.

Faculty Fellowships Available Through the Fund for the Advancement of Education

The Fund for the Advancement of Education is offering some 250 faculty fellowships for the academic year 1952-1953 to college teachers throughout the United States. The purpose of this program is to enable the recipients to become better qualified to teach in their respective fields as part of an integrated program of liberal education.

Each faculty fellowship provides a grant approximately equivalent to the salary of the recipient for the academic year plus certain expenses which, in the opinion of the committee, are essential to his plan of study. No money will be provided for travel outside of the United States.

Candidates should be men and women between the ages of 30 and 45 who have been teaching steadily for several years. Each candidate must be nominated by his own institution. Fellowships are available in the humanities, the social sciences, and the natural sciences. Detailed information concerning the fellowship program can be obtained by writing to the Fund for the Advancement of Education, 575 Madison Avenue, New York 22, New York.

Social Science Research Council Announces 1952 Fellowships and Grants Available

The SSRC has announced that applications for fellowships and grants to be announced in April, 1952, must be received by it before January 15, 1952. All awards are restricted to permanent residents of the United States or Canada, and faculty research fellowships are offered only in the United States. Full details concerning research training fellowships, area research training fellowships, travel grants for area research, grants-in-aid of research, and faculty research fellowships are available from the Social Science Research Council, 726 Jackson Place, N. W., Washington 6, D. C. No funds are available for subsidizing the publication of books or articles.

Educational Testing Service Fellowship Awards for the Academic Year 1951-1952

The Educational Testing Service announced that H. Paul Kelly, graduate student of the University of Texas; Samuel J. Messick, senior at the University of Pennsylvania; and Richard E. Wortman, graduate student at the University of Washington, were recipients of their annual fellowship awards which provide for graduate study in psychology at Princeton University.

The grants are for the Psychometric Training Program of the Department of Psychology at Princeton. The teaching personnel of this program comes from the Staff of the Educational Testing Service, a national, non-profit testing

agency. Students in the program are offered training in various fields of psychology including experimental, social, and theoretical. Special training is given in modern quantitative methods as applied to problems in learning, testing and attitude measurement, as well as in the techniques of developing aptitude and achievement tests.

Research Fellowships at the Israel Institute of Applied Social Research

The Israel Institute of Applied Social Research at Jerusalem is willing to provide facilities for post-graduate training in the field of social and socio-psychological research to foreign junior workers who have at least completed the requirements for the M.A. Degree. Facilities can at present be made available to three workers for each year. The minimum period for a fellowship should be one year. It is felt that a shorter period would be insufficient to enable the recipient to progress enough in mastering research techniques.

The training would emphasize the following topics which are basic to many kinds of research and to which the Institute has made important contributions:

1. Scale and intensity analysis in attitude measurement.
2. Higher components of attitudes, their empirical identification and use.
3. Use of scale analysis in psychometric testing.
4. Systematics of research and questionnaire design.
5. Factorial structure of mental abilities.
6. Research techniques in underdeveloped areas.

No formal course work will be involved in the training program. The fellow will learn research technique by working on one or more of the Institute's projects that are in process. He will have the opportunity to participate in the design of projects, training and supervision of field staff, processing the data, and preparing reports. He will attend the weekly staff seminar of the Institute, where methodological theory and problems are discussed, and will have a senior member of the Institute's staff serve as his personal adviser and tutor.

It may be mentioned that several recipients of Social Science Research Council (U.S.A.) fellowships and other American students have already made use of training and research facilities of the Institute.

The Institute is prepared to offer these services provided that funds can be found for the traveling and maintenance expenses of the fellows. Information concerning these fellowships may be obtained from Uriel G. Foa, Executive Director, American Committee for Social Research in Israel, Inc., Post Office Box 1457, Grand Central Station, New York 17, New York.

Fellowships and Visiting Professorships Available at Air University

The Air University at Maxwell Air Force Base in Alabama, in conjunction with the Board of Control for Southern Regional Education, has developed a plan whereby visiting professorships and fellowships for doctoral candidates can be arranged for an unspecified number of persons. The purpose of the Air University is to serve as an educational and research center for the U. S. Air Force. It is responsible for administering the following schools and related agencies: Air War College, Maxwell Air Force Base, Alabama; Air Command and Staff School, Maxwell Air Force Base, Alabama; USAF School of Aviation Medicine, Randolph Air Force Base, (San Antonio), Texas, and Gunter Air Force Base, (Montgomery), Alabama; USAF Institute of Technology, Wright-Patterson Air Force Base, (Dayton), Ohio; USAF Extension Course Institute, Gunter Air Force Base, Alabama; Human Resources Research Institute, Maxwell Air Force Base, Alabama; Research Studies Institute, Maxwell Air Force Base, Alabama.

For some time the Air University has been investigating the possibility of collaborating with colleges and universities on research programs of common interest. Among the results of this investigation is the award program. Three kinds of awards are available. Air University fellowships, which are one-year fellowships for recommended graduate students working for a doctor's degree in a civilian college or university. The compensation for these fellowships range from \$3100 to \$3825 per year, depending upon education and qualifying experience of the applicant. These fellowships are renewable. Air University Visiting professorships are one-year positions awarded to recommended faculty members of civilian institutions. They provide an opportunity for post-doctoral research on problems of interest to the Air Force. Compensation is based on the salary of the Civil Service grade for which the faculty member can qualify. Other awards are granted to recommended graduate students or faculty members of civilian colleges or universities who wish to pursue research on special subjects of their own choosing which may be of interest to the Air Force.

Fellowships are open to any student who is a citizen of the United States currently enrolled in a graduate program leading to a doctor's degree in a college or university and who is recommended by his college or university. Visiting professorships are open to faculty members who are United States citizens and are holders of a doctor's degree and are recommended by their colleges or universities.

Applications may be made at any time. While no specific limit has been placed on the number of awards to be given, the number cannot be very great and applications will be considered primarily from the point of view of the contribution that the student or faculty member can make to the work of the Air Force. Security

clearance is required before any application can be approved.

All inquiries concerning the program should be addressed to the Commanding General, Air University, Maxwell Air Force Base, Alabama. Attention: Air University Secretary.

Guides to Economic and Financial Material

The National Industrial Conference Board has just published the 1951-52 edition of *The Economic Almanac*. It is the eleventh edition of the unique and widely-used compendium of economic statistics. Coverage of material has been substantially increased so that it now represents one of the most comprehensive single source books, providing the businessman and the economic analyst with over 650 pages of valuable, carefully edited and up-to-date statistical information. Copies are available from the N.I.C.B., 247 Park Avenue, New York, New York. Paper copies are \$4.00 and cloth copies \$5.00.

The New York Herald Tribune has again issued a revised edition of "How to Read the Financial News" by its financial columnist, C. Norman Stabler. According to its author, the brochure is designed to acquaint the reader with the important features of the Financial and Business pages of newspapers and to assist students of economics in schools and colleges.

Within the space of 54 pages, this publication covers information which should prove valuable to the non-specialist venturing into technical parts of the financial section of newspapers and trade journals. It may be obtained for \$1.00 a copy from the Information Service, New York Herald Tribune, 230 West 41st Street, New York 18, New York.

WHO Annual Epidemiological and Vital Statistics

The publication by the World Health Organization of its *Annual Epidemiological and Vital Statistics, 1939-1946*, marks the resumption of the series maintained through 1938 by the Health Organization of the League of Nations in its *Annual Epidemiological Report*. Part I of the new WHO publication contains data for a large number of countries on area, population, nuptiality, natality, fertility, gross and net reproduction rates, and general and infant mortality rates for the period 1921-46; neo-natal mortality rates, 1931-46; and mortality by cause of death in 33 countries from the prewar period up to 1946. Part II contains corrected statistics of notifiable diseases.

Lebanese Statistical Quarterly

A new quarterly, *BULLETIN STATISTIQUE TRIMESTRIAL* has been issued by the Statistical Office of Lebanon. The first issue which covers the first and second quarter of 1950 contains tables of climatology, movement of population, finance, transport and communications, production, prices, consumption and external trade.

United Nations Regional Statistical Conferences

Following the pattern of the first Regional Meeting of European Statisticians, held in Geneva, Switzerland, in March 1949, and the ECAFE Regional Conference of Statisticians held in Rangoon, Burma, in January 1951, the Statistical Office of the United Nations and the Economic Commission for Europe sponsored a second Regional Meeting of European Statisticians in Geneva September 17-21, 1951. Both of the European meetings dealt with statistics of industrial production and external trade. Statisticians from the United States and most of the countries of Western Europe attended the meeting in September, at which consideration was given to specific problems in connection with application of the Standard International Trade Classification and to definitions and concepts for basic industrial statistics and production indexes.

Both the ECAFE Regional Conference of Statisticians and the Regional Meeting of European Statisticians adopted recommendations aimed at the convening of further meetings of a similar character. The ECAFE Conference proposed that another meeting be held during 1952, to consider questions of statistics having direct relation to the most pressing economic problems of the countries in the region, such as statistics of agricultural and industrial production and national income. The European group concluded that a third Regional Meeting of European Statisticians would be warranted as soon as possible, to discuss, *inter alia*, methods of measuring change in the price level in inflationary conditions, and methods of measuring labor costs.

The Statistical Office of the United Nations is also collaborating with the Economic Commission for Latin America, the International Monetary Fund, and the United Nations Technical Assistance Administration in conducting a Conference on External Trade and Balance of Payments Statistics, to be held in Panama City December 3-15, 1951, under the sponsorship of the Government of Panama. The Inter American Statistical Institute is cooperating in arrangements for the Conference, in which all members of IASI have been invited to participate.

UN ECOSOC Action on Commission Resolutions

The Economic and Social Council of the United Nations at its 13th session, held in Geneva this summer, took action on several matters affecting the work of its Statistical Commission and Population Commission. On the basis of recommendations in the reports of the two Commissions on their sixth sessions, the Council adopted resolutions pertaining to coordination of international research and studies on migration; investigation of the desirability of and possible arrangements for a proposed world conference on population; compilation by the Secretary-General of a new list of customs areas, with the concurrence of each country concerned, and the utilization of such a list by countries in reporting their trade-by-country statistics; and steps to improve the

international comparability of criminal statistics.

The Council also approved the proposal of the Population Commission to increase the size of that Commission from 12 to 15 members, and elected Australia, Indonesia and Mexico to fill the three new places. The United States, China, United Kingdom and U.S.S.R. were reelected to membership. For the Statistical Commission, the United States, China, Netherlands and U.S.S.R. were reelected, and Australia was elected in place of the Philippines.

In connection with its review of the organization and operation of its functional commissions, the Council decided that both the Population Commission and the Statistical Commission should be continued in existence, but that they should ordinarily meet only once every two years. The date for the seventh session of the Statistical Commission was set for early in December 1952; no date was set for the next session of the Population Commission, which presumably will be scheduled for some time in 1953.

The Council voted to discontinue the Sub-Commission on Statistical Sampling after its fourth session, to be held in India in December 1951, and to transfer its functions to the Secretary-General, the Statistical Commission, or ad hoc bodies, as appropriate.

New Un Publications on International Trade

The Statistical Office of the United Nations has inaugurated publication of a *Yearbook of International Trade Statistics* and a new quarterly, *Commodity Trade Statistics*, which represent important additions to the series of international trade data previously issued regularly in the *Monthly Bulletin of Statistics*, the *Statistical Yearbook*, the quarterly *Summary of World Trade*, and the monthly *Direction of World Trade*. The new *Yearbook* contains statistics for 42 countries, giving figures, in so far as available, on trade analyzed by commodity and by country of origin and destination for a prewar year (usually 1938) and for each year 1947-1950. Historical series on total trade, 1930-1939, are also included.

The new quarterly, *Commodity Trade Statistics*, has so far been issued only in preliminary form, with data for only seven countries in the first issue. It is designed to present, for each (3-digit) group of the Standard International Trade Classification, quarterly figures on value and quantity of imports and exports for each country reporting trade in the group valued at \$1,000 or more. Details of provenance and destination are shown, if available, for trading partners of the reporting country whenever the value of the trade is \$10,000 or more.

Inquiries concerning these publications may be addressed to the Statistical Office of the United Nations, New York 17, N. Y. The new *Yearbook of International Trade Statistics, 1950* can be purchased through the International Documents Service, Columbia University Press, 2960 Broadway, New York 27, N. Y., at \$1.75 per copy.

Statistical Quality Control In Japan

by S. KOYANAGI

Managing Director

Union of Japanese Scientists and Engineers

1. *Early History.* With a very few exceptions, goods made in Japan have often had a bad reputation of being "cheap but inferior". Prior to the Second World War, however, a large variety of commodities made in Japan, including bicycles, rubber tires, ships, optical equipment, textiles (cotton goods in particular) and medicines, found wide markets all the world over, and they no doubt gave satisfaction to millions of customers abroad. This was ascribed, for the most part, to the conscientious efforts on the part of Japanese manufacturers to make at the lowest possible cost such goods as would meet overseas requirements.

In 1942, E. S. Pearson's "The Application of Statistical Methods to Industrial Standardization and Quality Control" was translated into Japanese by Yasuo Ishida and Toshio Kitagawa and published in book form. In the midst of the Pacific War, however, Japanese industry was completely at the beck and call of the military services which demanded the largest possible production even at the sacrifice of quality. As a consequence, pioneering attempts for statistical quality control bore no fruit.

2. *Recent History.* With the end of Pacific hostilities, Japanese statisticians came to have direct contact with industry because SCAP, out of administrative necessity, put such emphasis upon statistical surveys that both government and civilian circles were strongly urged to take an interest in statistics and its application.

In September, 1949, the Japanese Union of Scientists and Engineers opened the Statistical Quality Control

In Japan, statistical techniques have gained recognition as a national resource, capable of (a) increasing production without increase of capital equipment or raw materials; (b) increasing the uniformity of the product; (c) improving the design of the product, by studying the wants of the consumer; (d) conserving scarce materials for optimum utilization; (e) lowering costs of raw materials and production. All these advantages are of vital concern to industrial management in Japan, because of the need for increased export of manufactured goods to pay for needed imports of food. Mr. Koyanagi's article tells how Japanese industry has profited from technical assistance.

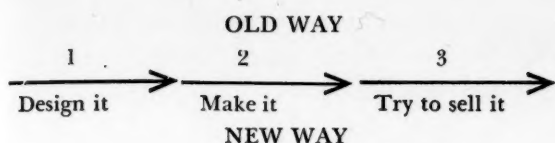
Seminar. In the following 12 months, 39 students (sent by 20 sponsoring corporations) received lecture courses, about 200 hours in 30 days, from 20 odd professors and instructors of various universities. In the course of this Seminar, serious attempts were made, though on a very small scale, to apply the newly-learned methods at manufacturing plants. The results obtained were so satisfactory that they attracted the attention of top-management.

Unfortunately, however, it was not fully realized in the business world that statistical methods, as a tool for scientific management, must be applied extensively for consumer research, design control, product control and sales control. Another regrettable fact was that engineers and experts interested in research and application were too much engrossed in minor technicalities to explain their methods in plain language to industrial people from top-management to the average worker. Thus the sound progress of statistical application was deterred considerably.

3. *Dr. W. Edwards Deming's Lectures.* An upswing in the use of control charts commenced in the summer of 1950 with lectures by Dr. Deming. These were 8-day courses in Tokyo with 220 students, and in Fukuoka with 110 students. In 1951 there were 200 more students in Tokyo, and 220 more in Osaka. Assisting in each course were a number of Japanese statisticians, who received the benefit of the lectures. One feature of the courses was the textbook, the American Standards pamphlets on quality control (Z.1-1, 2, 3, 1942), now also adopted by the Japan Standards Association. These pamphlets required much supplementation, but their comprehensive coverage in simple language had a wholesome effect. Many of the 330 engineers who took these courses have made notable application in their companies.

In the summer of 1951, Dr. Deming again gave also a 9-weeks series of lectures in the sampling of human populations, with special emphasis on market research.

In addition to the lectures on the techniques of sampling, Dr. Deming stressed to top management, in many well attended lectures, the broad concepts of statistical quality control from tests of raw materials through the whole stream of production to the consumer research by which the product is designed and redesigned to meet the wants of the consumer and his pocketbook. In fact, he compared the old and new concepts in the simple diagrams shown here.



1. Design it
2. Make it
3. Try to sell it
4. Test it in service
(consumer-research).
5. Re-design
(Repeat the cycle, over and over.)

The 4th step is new, as for economy and reliability it relies on modern methods of sampling, by which the manufacturer keeps in touch with the users and the non-users of his product. He is thus able to meet their wants by continual redesign of his product.

4. *Statistical Quality Control Seminar.* The Statistical Quality Control Seminar, under the auspices of the Union of Japanese Scientists and Engineers, consists of two courses: i.e. the basic course and the advanced course. The basic course is now in the fourth session as listed below:

Session	Term	No. of Sponsoring Companies	No. of Students
I	Sept. 1949—Aug. 1950	20	39
II	Sept. 1950—Feb. 1951	28	70
III	Apr. 1951—Sept. 1951	34	93
IV	Nov. 1951—Apr. 1952	24	67

Subjects of study in the basic course are:

Subject	Length of Lectures (hrs.)	Outline of Contents
Introduction	15.5	Outline, organization, history, methods of dissemination, etc.
Basic Theory	16.5	Elementary mathematics necessary for statistical quality control
Applied Mathematics	12	Applied mathematics essential for S. Q. C. and exercises
Control Charts	40	Control chart methods, probability methods, other special control charts & exercises
Statistical Methods	48.5	Sampling, factorial design, elementary experimental design & exercises
Sampling Inspection	26	Outline of various sampling inspections
Researches & Discussions	15	Home tasks and researches by industrial group based on these tasks, discussions
Special Lectures	8.5	Special problems relative to S. Q. C. Ceremonies, etc.
Others	2.5	
Round-table Discussions by Group	(11.5)	Once a month (for about two hours), each industrial group holds free discussions as an extra
Total Hours	184.5	(11.5 extra)

The advanced course includes all of the same subjects but is designed for students who have completed

basic course. Three advanced courses have been given during the period from September 1950 until now.

5. *Courses in Universities.* In Japan, no university offers formally a course for statistical quality control, although many of them offer excellent courses in statistical theory.

6. *Applications: tangible results.* Research work was started only four years ago for application of statistical methods to industry, yet conspicuous progress has been made in theoretical and practical researches. Tangible results in application have been attained in hundreds of manufacturing plants, covering coal and metal mining, metallurgical, machinery, chemical, pharmaceutical, textile and transportation. Moreover, management in general is being systematic and rational in many business corporations and manufacturing plants. Especially remarkable are the results in the promotion of laboratory research and the determination of economical methods for industrialization through experimental design; the dissemination of scientific thinking in management and quality-mindedness in manufacture through the application of statistical methods; and the increase of profits, as in the case of advanced countries, available from statistical management.

In the field of Market research, however, we have only made a beginning.

7. *The Annual Deming Prize.* In memory of Dr. Deming's thoughtful guidance and excellent service in the dissemination and application of statistical quality control in Japan, this prize was established in the fall of 1950 under the sponsorship of the Union of Japanese Scientists and Engineers, with the profits available from sales of the "Dr. W. E. Deming's Lectures in Statistical Control of Quality" (his 1950 lectures published in book form in both English and Japanese). The first award was made on September 22, 1951, at a national convention in Osaka.

The Deming Prize Committee, consisting of representatives of Government and civilian circles concerned, voted to establish an award of a sum of money each year (\$150 in 1951) for outstanding work in theory, or in application, teaching, or dissemination; and in addition, citations to one or more manufacturing plants or corporations that have made notable progress in application during the past year. This year the first prize went to Motosaburo Masuyama for his work in theory. Awards in practical use were also made to the following companies: Fuji Iron and Steel Mfg. Co., Showa Denko Co., Tanabe Pharmaceutical Mfg. Co., and Yawata Iron and Steel Mfg. Co.

8. *Journal, Statistical Quality Control.* This monthly is the only periodical in Japan specializing in statistical quality control. It was first published in March, 1950, by the Union of Japanese Scientists and Engineers, and its circulation has doubled to 1,700 copies in October, 1951, from about 900 copies for the inaugural issue. Widely read by engineers and managers at most important manufacturing plants, this journal has been a guide-book for the application of statistical methods for business purposes. Its pages numbered only forty-eight from its start in February, 1951, but it has now increased to about fifty-seven.

Seasonal Variations and Calendar Influences

by CHARLES ARMSTRONG

In the analysis of time series, measuring and removing seasonal variation, and adjusting for the varying influences of the calendar may be important steps. The concepts involved, however, may not be too clearly defined, and the proper choice of procedures may present something of a problem.

As generally accepted, with respect to monthly data, seasonal variation is any 12-month periodic fluctuation. Such 12-month periodicities may be attributable to the round of the seasons, with the attendant normal patterns of temperature, precipitation, solar radiation, and crop production, or to human customs and institutions, such as holidays, religious functions, business practices, and vacations, or to the fact that some months are longer than others.

The influences of the calendar are twofold. The first effect is that of over-all length of month. Thus March with 31 days is $1/30$ or $3\frac{1}{3}\%$ longer than April with 30 days. To the extent that number of days has a direct bearing on the series under study, differences in the over-all lengths of the months are reflected in the monthly data. Since the pattern of these fluctuations repeats every 12 months, they are a form of seasonal variation. When we measure and adjust for seasonal variation in any series from which the length of month factor has not already been removed, we are automatically measuring and adjusting for this calendar influence, as well as for the other seasonal factors.

The second calendar influence is the result of the varying number of Saturdays and Sundays in a given month from one year to the next. It is present only in series for which Saturdays or Sundays contribute different amounts to the monthly totals than do week-days. For example, in a series for which an average Saturday is equivalent to $2/3$ of an average week-day, and Sunday to $1/3$, a 30-day month with 4 Saturdays and 4 Sundays will be equivalent to 26 week-days (assuming no holidays), whereas the same month with 5 Saturdays and 5 Sundays will be equivalent to only 25 week-days. The first will thus be $1/25$ or 4% greater than the second in effective length. The pattern of this type of calendar influence, usually called calendar shift effect, repeats each 28 years, and is not included in the measurement of seasonal variation, but remains as a residual element after seasonal has been eliminated.

If the equivalent values of Saturdays and Sundays in terms of week-days are known, it is possible to construct an index of the number of equivalent week-days in each month as related to the average of all the months. This calendar index will reflect both types of calendar influences—the over-all length-of-month factor, and the calendar shift factor. The index may then

be applied to the data, and subsequently, the remaining seasonal variation measured and eliminated. (In such a case, the measurement of seasonal variation should never precede the application of the calendar index to the data. Such a procedure would twice remove the length-of-month element in the calendar index, and hence produce incorrect results.)

For most series, there is no direct information available as to the equivalent values of Saturdays and Sundays in terms of week-days. Even when such information is available from time studies or from other supplemental data, the equivalent values so obtained may not always be accurate indicators of the net effect on the series of the varying incidence of Saturdays and Sundays. For example, in a series consisting of payrolls for a plant closed on week-ends, it would seem reasonable to assume, in constructing a calendar index, that Saturdays and Sundays have zero equivalent value as compared with week-days. If, however, the work load in the plant necessitates more overtime in 5-week-end months than in 4-week-end months (due to the fewer week-days involved), the series will behave as if Saturdays and Sundays had positive values.

From the above, it can be seen that the construction of effective indexes of calendar variation often is difficult and sometimes impossible. The alternative to computing a calendar index is to treat the over-all length-of-month influence as a seasonal factor, and subsequently, to handle the calendar shift effect separately. In practice, seasonal variation may be computed directly from the data and eliminated, after which calendar shift indexes may be determined from the behavior of the deseasonalized data. The American Statistician for October-December 1950 outlines one method for measuring calendar shift effects. Such a procedure applied to the plant payroll example mentioned above would produce calendar shift indexes based on positive values for Saturdays and Sundays, since that is what the behavior of the series would indicate.

No supplemental information is required when using this approach to the problem, although it is desirable to review the computed calendar shift values for reasonableness. Since there is no interaction between seasonal movements and calendar shift effects other than the general obscuring effect of mixing two different types of fluctuations, this approach lends itself to refinements through the process of successive approximations. For example, after seasonal has been measured and eliminated, and calendar shift indexes computed, it is often possible to compute more refined seasonal indexes by working with the original data adjusted by the calendar shift indexes. This successive approximation procedure is particularly effective in short series in which the calendar shift effect is large.

Report of the 1951 Annual Meeting Program Committee

The Program Committee was organized during the fall of 1950 and active planning of the details of the program started immediately after the annual meeting held in December 1950. Responsibility for developing sessions in their respective subject matter areas was assigned to the following Sections and Committees: Biometrics Section, Business and Economic Statistics Section, Section on the Training of Statisticians, Committee on Statistics in the Physical Sciences, Committee on Statistics in the Social Sciences, and the Committee on Census Enumeration Areas.

The program Committee worked closely with corresponding Committees of The Econometric Society and The Institute of Mathematical Statistics. The sessions dealing with statistical theory and techniques on the program of the American Statistical Association were planned in cooperation with the program coordinator of The Institute of Mathematical Statistics.

The final program consisted of 45 sessions distributed as follows among broad subject matter areas.

<i>Subject Matter Area</i>	<i>No. of Sessions</i>
Biometry	9
Business and Economic Statistics	15
Census Tracts	1
Physical Sciences	4
Social Sciences	10
Statistical Theory	3
Training of Statisticians	3
—	45

A special effort was made to hold joint sessions with other societies and organizations. Twenty-five of the 45 sessions were sponsored by one or more of the following 14 organizations, American Public Health Association, Institute of Mathematical Statistics, Econometric Society, Boston Security Analysts Society, New England Region of the American Society for Quality Control, Population Association of America, Eastern North American Region of the Biometrics Society, American Farm Economics Association, Rural Sociological Society, American Sociological Society, Social Work Research Group, Society of Actuaries, American Association of University Teachers of Insurance and the American Finance Association. In addition the American Statistical Association joined in sponsoring a session with the American Economic Association.

Following the excellent precedent established for the 1950 annual meeting, arrangements were completed for the preparation of a joint program by all of the organizations meeting in Boston.

Two new features were added to the program. A dinner meeting featuring the presidential address was arranged for Thursday, December 27. Perhaps the most unusual addition to the program was a concert by the Boston Pops Orchestra, Arthur Fiedler conducting, sponsored by all the organizations meeting in Boston, and scheduled for Friday evening, December 28.

HAROLD F. DORN, *Chairman*

A Textbook with Special Reference to Economics and Business

Basic Statistics

By GEORGE SIMPSON and FRITZ KAFKA

A new textbook for the introductory one-semester course in economic and business statistics, that is especially designed to help the beginner master statistical grammar. The authors have carefully fitted the content to this aim, and have included no more material than they believe will achieve this goal.

Throughout the book, statistics is treated as a living, human activity, not as an abstract body of formulas and procedures. Technical aspects are related to statistical thinking and practice, and the discussion is restricted to basic concepts which require only a knowledge of arithmetic and algebra for their understanding. Every for-

mula is first explained in words before being presented in symbols.

The examples and problems included at the end of the book constitute a laboratory manual with more than sufficient material for use in a one-semester course. The appendixes include: a simple statement on how to write a statistical report, tables of random numbers with a description of their use, and a short discussion and illustration of control charts used in statistical quality control. *Basic Statistics* was tested for two years before its publication in the authors' courses at City College of New York, N. Y. With 110 charts, graphs and illustrations. Price, \$4.90.

W. W. NORTON & CO., INC. — 101 FIFTH AVE., N. Y. 3

For use in a forthcoming book, "How to Lie With Statistics," I am searching for additional examples of statistical errors and misleading statements based on statistical data.

I am interested in cases of obviously biased or inadequate samples; graphs with bottoms cut off or figures omitted; insignificant differences made much of; misleading pictographs; unwarranted assumptions such as the *post hoc* type; use of mean instead of median for income in order to get a larger "average"; and so forth.

I hope anyone who can recall or find similar, or other, types of statistical incompetence or chicanery—whether in statistical work or its presentation in newspapers, magazines, or advertising—will send them to me.

DARRELL HUFF
Cavedale Road
Sonoma, California

SOME PROBLEMS FOR INDEX NUMBER WORKERS

This note is prompted by several items which have appeared in *The American Statistician*, some recent publications concerning index numbers, and criticisms made of available measures during and since the last War. Its purpose is to reassert the importance of "technical" problems of measurement and interpretation which are too frequently neglected by index makers or dismissed by them as insignificant (on the basis of inconclusive tests), semantic, or "familiar". The status of index makers as "experts" has already been impaired by insufficient attention to such problems and by failure to insist on the limitations of their craft. To rehabilitate their prestige, they will certainly have to adopt a more critical attitude toward available data, conventional practices, and the uses made of their results. They will also have to show greater interest in the relationship between constructible measures and theoretically preferable ones.

A fundamental idea which ought to be more widely accepted is that general terms like (wholesale or retail) price, production, or productivity imply families of related concepts and hence cannot be represented by unique measures.¹ Different choices of data, commodity classifications, formulas, and weights amount to different operational definitions of such terms. Each combination makes some sort of sense; and none is "best", "right", or "wrong" without reference to a purpose, context, or use. The stipulation of algebraic or other conditions to be satisfied by an acceptable index could rule out all but one or a few of the measures which are plausible *a priori*.

Many aspects of production measurement require closer study. The notion of "physical volume" is metaphorical at best; its pristine clarity vanishes with the introduction of weights, attempts at adjustment to a "net" basis, the introduction of "services" in input terms, the desire to adjust for quality changes (too

lightly assumed to be "improvements"), etc. The common methods of handling changes in the product universe (like chaining and the application of the value-coverage adjustment) tend to impart a downward bias when new products are introduced. There ought to be some experimentation with another method the extension of the familiar aggregative indexes to include items which can have zero quantities (according to the date of the weight base) may be assigned hypothetical weights. For areas in which significant measurement is impeded by the extreme heterogeneity of end products (e.g., machinery or construction), the compilation of data by "subproducts" (the outputs corresponding to "arcs" of full production cycles) ought to be considered.³ Subproduct measures would tend to be invariant to changes in degree of technical integration, to correspond closely to the structure of activity, and hence to yield more significant productivity measures. Subproduct indexes could differ greatly from the customary "gross" (e.g., value-weighted) end-product indexes for individual manufacturing industries; and the latter, in turn, must not be assumed equivalent to preferred net output measures based on reduced aggregates or on end-product series with partial (e.g., value-added) weights.

It ought also to be conceded that index numbers are essentially arbitrary. Being at best rearrangements of data wrenched out of original market and technological contexts, they strictly have no economic meaning. Changes in tastes, technology, population composition, etc. over time increase their arbitrariness. Furthermore, the factoring of, say, a value index into price and quantity measures does not really segregate the changes "due to" these two entities. But, of course, there is no bar to the use of indexes "as if" they did have some unequivocal meaning—provided the users remember that they themselves made up the game and do not threaten to "kill the umpire" when the figures contradict expectations.

The limitations of the technique of deflation are not sufficiently appreciated.² This technique cannot yield a satisfactory result by indirection if a direct approach does not suggest a conceptually clear measure in the first place. To satisfy the requirements of verbal algebra is not enough. It is also not generally understood that deflation of a value index by a price index with fixed weights cannot yield a quantity index expressed in "constant" dollars of the base period. Two other comfortable notions likewise have to be rejected: that the choice of a weighting period is inconsequential and that the shift of a quantity index from one time base to another also translates the weight base. Furthermore, if we wish to express gross national product in "constant" dollars, we must use a deflator which is not only suitable in scope and formula but also analogous in structure. Thus, if the national product is conceived as the sum of weighted outputs reduced by the sum of weighted inputs (of materials, etc.), then the price deflator must also contain corresponding positive and negative aggregates.

Many problems of productivity measurement and interpretation involve the production numerator, but some do not. The composition of the non-labor input

¹ The position taken in this paragraph and the next differs from that expounded in Professor Mudgett's new book, *Index Numbers* (1951).

One of the most significant developments in recent years contributing to the need for the new Section has been the increased acceptance of statistics as a tool for management decision-making in business organizations across the nation. This more receptive attitude of many business executives can be traced in large part to fuller recognition of the need to measure the impact upon individual companies of many complex economic factors outside as well as within their own organizations. Some further progress has been made during the last decade in narrowing the gap between business practice and more formalized economic and statistical theory. A good deal more remains to be done along these lines, however, and it is to be expected that the BES will provide a new basis for improving common understanding among business executives, academic research specialists, and government analysts in dealing with mutual or similar problems.

The strong underlying support for the BES, now found in the large self-designated membership and in the increase in institutional memberships in the ASA from business organizations, assures the Section a promising future. A number of problems must be faced, however, to make the Section program fully effective.

First, there is need in the interest of greater unity throughout the statistical profession to study the basic causes for certain cleavages among members (e.g., academic versus non-academic, mathematical versus non-mathematical) which are common to virtually all professional associations at the present time. Closer association of individuals holding such divergent points of view should aid considerably in better understanding and perhaps lead to more common ground in their statistical techniques and applications.

Second, greater efforts must be made to obtain manuscripts dealing with significant business and economic statistical problems for publication by the ASA. Experience has shown that such writings are not readily forthcoming, particularly from statisticians employed in private business, and to some extent from government statisticians as well. The reason generally is not unwillingness to prepare papers but rather insufficient free time to do the "polished" job thought to be required—plus the ever-present danger of disclosure of confidential company or other data. It is particularly unfortunate that many business and economic statisticians having a wealth of data and analytical experience to share with others, are not contributing to ASA publications at the present time. More specific invitations to prepare papers may help to solve this problem, particularly if the authors are notified considerably in advance of any publication deadline.

Third, additional funds must be raised to help finance the national ASA, and especially to provide for a wider publication program, including as a minimum a printed proceedings of the annual meetings so as to ensure general distribution of the many important papers which are prepared for these occasions.

Fourth, the possibility must be explored of holding at least certain meetings at times other than during the close of the Holiday season in order to stimulate greater interest and attendance from among non-academic members in particular.

With the cooperation of interested statisticians in all sections of the country leading to the formation of the BES and the encouragement of national ASA leaders, there is every reason to expect many worthwhile contributions to statistics as a result of the activities of the BES members. Since the Section program still remains in a formative stage, comments and suggestions are needed and welcomed.

WALTER E. HOADLEY, JR.
Chairman

index required for total-factor productivity measurement needs to be clarified. A distinction must be made between labor productivity measures computed as internal averages of productivity relatives and those computed as quotients of output and labor-input measures. With proper weights, the two can be made identical; but, typically, the quotient is factorable into an average of productivity relatives and an index showing the shift in output structure, so it need not lie within the range of productivity relatives. Finally, the virtues of the labor productivity concept must not be overlooked in the zeal to point out that labor alone is not technically responsible for the output associated with it—a fact which even Marx would not have denied.

Now, a word about base periods.⁴ It is not generally known that a compound time base—like 1935-39 or 1947-49—is awkward for cases in which further operations, like multiplication or division, have to be performed on indexes already constructed on such a base. Since the products or quotients (unlike the original indexes) may not average to 100 for the base

period, the true averages must be ascertained before any quotient or product can be correctly interpreted. When monthly series are involved, ascertainment of these averages requires a large amount of extra computation. Finally, the notion that a base period represents a "normal" may be satisfactory for cyclical studies—but not for studies of secular growth, which is characterized by rising money prices, production, and productivity.

IRVING H. SIEGEL

² Many of the points made here and in the next two paragraphs were elaborated in two papers presented at the 110th Annual Meeting (1950) of the American Statistical Association, "Progress and Problems of Production Measurement" and "A Half Century of American Productivity Measurement".

³ See the writer's article, "The Concept of Productive Activity", *Journal of the American Statistical Association*, June 1944, pp. 218-28.

⁴ See the writer's "A Note on the 1935-39 Standard Base", *Bulletin of the American Statistical Association*, March 1942, pp. 198-99.

Program of the Econometric Society

The following sessions are in addition to the sessions sponsored jointly by the Econometric Society and the American Statistical Association which were published as a part of the complete program in the October issue of the American Statistician.

WEDNESDAY, DECEMBER 26

- 1:20 P. M. Contributed Papers**
Chairman: Gerhard Tintner, Iowa State College
- Papers**
 Relation of Labor Requirements to Output
 Daniel Suits, University of Michigan
 Theories of Location and Trade, International and Interregional
 Walter Isard and M. J. Peck, Harvard University
 General discussion from the floor
- 2:30 P. M. Analysis of Economic Development: Round Table**
Chairman: Wassily Leontief, Harvard University
- Paper**
 Analysis of Economic Development
 James S. Duesenberry, Harvard University
- Discussion**
 J. D. Black, Harvard University
 K. Davis, Columbia University
 Evsey Domar, The Johns Hopkins University
 Walther Hoffman, Germany
 N. Rosenstein-Rodan, International Bank
- 8:00 P. M. Developments in Input-Output Analysis**
Chairman: Milton Friedman, University of Chicago
- Papers**
 The 1947 Input-Output Table
 W. Duane Evans and M. Hoffenberg, U. S. Bureau of Labor Statistics
 A Dynamic Model
 George B. Dantzig, U. S. Department of the Air Force
- Discussion**
 John Chipman, Harvard University
 B. Klein, Council of Economic Advisers
 W. Allen Wallis, University of Chicago
- 8:00 P. M. Time Series Analysis**
Chairman: Tjalling C. Koopmans, Cowles Commission for Research in Economics
- Papers**
 Economic Times Series and the Testing of Hypotheses
 Guy H. Orcutt, Harvard University
 Autocorrelation of Disturbances in Economic Behavior Equations
 John Gurland, Cowles Commission for Research in Economics
- Discussion**
 N. Georgescu-Roegen, Vanderbilt University
 William C. Hood, University of Toronto
 E. J. Working, University of Illinois

THURSDAY, DECEMBER 27

- 9:30 A. M. Regional Economics: Round Table**
Cosponsor: American Economic Association
Chairman: Calvin B. Hoover, Duke University
- Paper**
 A Discussion of the Spatial Aspects of the Structure and Functioning of an Economic System
 Rutledge Vining, University of Virginia
 Edgar Dunn, University of Florida
- Discussion**
 Edgar M. Hoover, Council of Economic Advisers
 Stefan Robock, Tennessee Valley Authority
 Harry Schwartz, Federal Reserve Bank of San Francisco
 Nathaniel Wollman, University of New Mexico
- 1:20 P. M. Measurement of Expectations: Round Table**
Chairman: Robert Bishop, Massachusetts Institute of Technology
- Paper**
 The Measurement of Expectations
 Franco Modigliani, University of Illinois
- Discussion**
 William J. Baumol, Princeton University
 George Katona, University of Michigan
 Carl Kaysen, Harvard University
 Avram Kisselgoff, The Bank of New York and Fifth Avenue Bank

- 2:30 P. M.** **Issues in Methodology**
Cosponsor: American Economic Association
Chairman: Fritz Machlup, The Johns Hopkins University
- Papers** The Impact on General Economics of More Realistic Theories of the Firm
Kenneth Boulding, University of Michigan
Institutionalism and Empiricism in Economics
Frank H. Knight, University of Chicago
Economic Theory and Mathematics—An Appraisal
Paul A. Samuelson, Massachusetts Institute of Technology
- Discussion** Allen G. Gruchy, University of Maryland
Wassily Leontief, Harvard University

FRIDAY, DECEMBER 28

- 9:30 A. M.** **Theory of the Firm: Round Table**
Chairman: Herbert A. Simon, Carnegie Institute of Technology
- Paper** Theory of the Firm
William W. Cooper, Carnegie Institute of Technology
- Discussion** Joe Bain, Stanford University
Alex Bavelas, Massachusetts Institute of Technology
Robert Dorfman, University of California, Berkeley
G. Holden, Kenwood Mills
Carl Kaysen, Harvard University
- 9:30 A. M.** **Econometric Models of the National Economy**
Chairman: Harold M. Somers, University of Buffalo
- Papers** An Econometric Model of Interindustry Material Flows
Roland W. Shephard, The RAND Corporation
Aggregation in Macroeconomic Models
Leonid Hurwicz, University of Minnesota
- Discussion** Millard Hastay, National Bureau of Economic Research
Tjalling C. Koopmans, Cowles Commission for Research in Economics
Kenneth O. May, Carleton College
- 1:20 P. M.** **Forecasting**
Chairman: W. Allen Wallis, University of Chicago
- Papers** The Econometric Approach to Forecasting
Lawrence R. Klein, University of Michigan
Canadian Experience in Forecasting from Econometric Models
Tillman Merritt Brown, Department of Trade and Commerce, Ottawa
Some Practical Results of Forecasting with a Quarterly Model
Harold Barger, Columbia University
- Discussion** Robert W. Adams, Standard Oil of New Jersey
V. Lewis Bassie, University of Illinois
Paul Boschan, The Econometric Institute
- 2:30 P. M.** **Theory of Consumption**
Chairman: Dorothy S. Brady, U. S. Bureau of Labor Statistics
- Papers** A Survey of the Theory of Rationing
James Tobin, Yale University
Some Implications of Empirical Research for Consumption Theory
H. S. Houthakker, Cambridge University
Prediction and Various Consumption Functions
T. E. Davis, The Johns Hopkins University
- Discussion** Elizabeth W. Gilboy, Harvard University
I. Schweiger, Federal Reserve Board
Eleanor M. Snyder, U. S. Bureau of Labor Statistics

SATURDAY, DECEMBER 29

- 9:30 A. M.** **Statistical Studies of Monetary Flows**
Chairman: Frederick C. Mills, Columbia University
- Papers** Social Accounting and Economic Analysis
D. Brill, Federal Reserve Board
Contrasts in Patterns of Flows of Commodities and Funds
Ruth P. Mack, National Bureau of Economic Research
Stocks and Flows in Monetary Analysis
Karl Brunner, University of California at Los Angeles, and
H. Markowitz, The RAND Corporation
- Discussion** Kenneth E. Boulding, University of Michigan
Alfred G. Hart, Columbia University
Abba P. Lerner, Roosevelt College

9:30 A. M.	Programming Problems <i>Chairman:</i> C. B. Tompkins, The George Washington University
Papers	Some Aspects of Inventory Control Jacob Marschak, Cowles Commission for Research in Economics Technology, Decision, and Organization David Rosenblatt, U. S. Bureau of the Budget
Discussion	Abram Bergson, Columbia University Merrill M. Flood, The RAND Corporation
1:20 P. M.	Contributed Papers <i>Chairman:</i> Robert Solow, Massachusetts Institute of Technology
Papers	The Influence of Interest Rates on Time-Series of Price Harold T. Davis, Northwestern University The Index Number Vector as a Projection of the General Constellation Paul Boschan, The Econometric Institute General discussion from the floor
2:30 P. M.	Contributed Papers <i>Chairman:</i> To be announced
Papers	Problems of Social Security from an Econometric Point of View Emil Schoenbaum, Mexican Institute of Social Security International Agreements and the Theory of Committee Decisions D. Black, University of Toronto The Mechanism of International Fund Adjustment Sidney S. Alexander, International Monetary Fund General discussion from the floor

HOW FORECASTING HELPS THE CHICAGO CHAPTER

By Helen Farrell and Robert H. Perry

A desire to peek into the future is probably one of nature's greatest urges. At least it is evident in approximately 20% of the Chicago Chapter's membership, which now includes forecasting business conditions as part of its regular economic diet.

For some years prior to 1947 it had been customary for the Chicago Chapter to devote one meeting each year to a discussion of the business outlook. As in other instances where something new and novel is involved, these meetings attracted rather widespread interest not only among chapter members, but in the press and elsewhere as well. Although the annual programs took on several different forms in the beginning, they were all designed to reflect both the views of informed business analysts and the forecasting methods which they employed.

At the June 1947 business outlook meeting, the entire chapter membership for the first time was asked to participate. Each member was invited to make his own forecast of the probable trend of four well-known and widely used measures of business activity for the fourth quarter of 1947 and the second quarter of 1948. The four were: (1) Gross national product (U. S. Department of Commerce), (2) Industrial production (Federal Reserve System), (3) Unemployment (U. S. Department of Commerce), (4) Wholesale prices (U. S. Bureau of Labor Statistics).

To assist in making the forecasts, appropriate background information and recent trend data for each of the series and their principal components were supplied to each member a few weeks in advance of the meeting. A return post card, on which appropriate spaces for estimates were provided, was enclosed. To be included in the chapter forecasts members were requested to mail their individual predictions within a deadline date established by the chapter vice president, who summarized the returns. At the meeting a tabulation summary was distributed to each member which included the arithmetic mean, standard deviation, and general frequency distribution of the individual estimates. These summaries were also used

as the basis for releases which were furnished the press and which have been rather widely used in the Chicago area not only by the large dailies but by suburban and community newspapers as well.

In the early days there was considerable reluctance by forecasters to have their names and company affiliations made known. For reasons best known to themselves, perhaps because of modesty or perhaps because it was believed there might be a high degree of correlation between accuracy in forecasting and continuation on the company payroll, members submitted forecasts only after extracting a solemn promise of complete anonymity. As individual forecasts began to show some signs of agreeing with conditions as they actually occurred, the apparent desire for anonymity diminished and both names and company affiliations became known. Indeed, an approach to accuracy became a mark of distinction, and at least one member has used his forecasting record to obtain a better position, accompanied by an increase in income.

Chapter response to the annual forecast poll has been gratifying. While the number of individuals who submit predictions has remained at about 50 each year, for the past 5 years, attendance at the forecast meeting alone has continued well above the average.

It may be of interest to those who believe that composite estimates are usually quite accurate to learn that chapter composites have developed some painfully embarrassing deviations, but the errors have been consistently on the conservative side.

More important, however, is the progress that has been made in individual forecasting. Analysis shows that since the forecast meetings began, reasonably accurate predictions have been made by an increasing number of chapter members. The award of an engraved plaque each year to the most accurate forecaster has developed an incentive. Publicity in the press concerning the winner and runners-up has heightened interest in the Chicago Chapter. In view of this it seems that annual forecast meetings will become a steady diet in future years.

NEWS about MEMBERS

- A Ernest Arvanitis** is now employed by the Metropolitan Life Insurance Company in New York City as an actuarial student.
- B Edgar F. Borgatto** has left the Department of Sociology at New York University to work as a research associate in the Laboratory of Social Relations at Harvard University.
- Leland D. Brokaw** has been appointed Chief of the Operational Test Construction Division at the Personnel Research Laboratory of the Human Resources Research Centre at the Lackland Air Force Base.
- C West Churchman** has taken a one year's leave of absence from Wayne University to serve as a visiting professor in the Engineering Administration Department of Case Institute of Technology at Cleveland, Ohio. He will be working on operations research as applied to industry.
- Thomas F. Corcoran** is leaving his position as chief of consultation and training in international statistics at the U. S. Bureau of the Census to serve as census and statistical advisor to the Government of Pakistan under the Point 4 Program.
- Edward L. Corton, Jr.**, has transferred from China Lake to work as a climatologist in the Navy Hydrographic Office at Washington, D. C. as a meteorologist.
- D Claude L. Dahmer, Jr.**, has left the Department of Agriculture and Commerce of the Government of Puerto Rico and is working as a survey statistician in the Agriculture Division of the Bureau of the Census at Washington, D. C.
- Robert G. Demaree**, formerly on the faculty at Tulane University, is now an assistant professor of psychology at the University of Illinois; he is engaged in personnel research under an Air Force contract and is teaching a graduate course in research methods in industrial psychology.
- E Richard R. Erbschloe** has graduated from the University of Missouri and been recalled to active duty with the U. S. Air Force. He has been assigned as a management analysis officer in the office of the Deputy Chief of Staff Comptroller Office at the headquarters of the Air Training Command, Scott Air Force Base, Illinois.
- F Walter D. Fisher** has accepted an assistant professorship in economics at Kansas State College, Manhattan, Kansas. He will be doing teaching and research in economics and marketing.
- G Marvin Glasser** has entered the University of Michigan where he is working for a degree of M.P.H. in Biostatistics.
- Vernon R. Grom** is working with the Radio and Television Division of Sylvania Electric Products at Buffalo, New York.
- J Warren E. James** has finished all of the requirements for his doctorate in sociology with the exception of his thesis and has accepted a position as instructor at the Department of Sociology and Anthropology at Cornell University. He is teaching courses in crime and delinquency and other social problems while he works on his doctoral dissertation. While in Ohio, Mr. James was executive secretary of the Ohio Commission to Study Alcoholism which made a survey of alcoholism in the State of Ohio and facilities existing to cope with it. The data were summarized in a report to the governor published under the title "Alcoholism in Ohio."
- K Fritz Kafka**, formerly on the teaching staff of the City College of New York, has joined the Bureau of Labor Statistics Office of Statistical Standards in Washington.
- Howard J. Kumin** is at present working as Chief of the Section of Industrial Statistics and Business Indices for the Government of Puerto Rico. His section is making a monthly survey of retail business by kinds of business in the San Juan metropolitan area and is computing an index of wholesale prices. During the coming year it is expected that the section will initiate an annual survey of manufactures; establish a monthly index of industrial production; revise and extend the basis for the wholesale price index; extend the retail trade survey to other parts of the island; and establish a monthly survey of wholesale trade. Mr. Kumin is at the same time training a staff to maintain and extend this work.
- L John M. Leiman** has been granted a year's leave of absence from the staff of Western Washington College to serve as Chief of the Research Services Division of the Personnel Research Laboratory in the Human Resources Research Center at Lackland Air Force Base, San Antonio, Texas.
- M Robert M. Mugge** has accepted a position as research assistant with the Commission on Human Resources and Advanced Training in Washington, D. C.
- N K. R. Nair**, statistician, Forest Research Institute, Dehra Dun, India, who has been awarded a Fulbright Travel Grant and a U. S. Government Fellowship to visit the U.S.A. and to conduct research at the Institute of Statistics, University of North Carolina, is expected to arrive at Raleigh, N. C. by the first of January, 1952. He will be staying for six months in the U.S.A.
- P Alan L. Price** has accepted a job with the U. S. Department of Labor where he is working on operational statistics for administrative use.
- R Hector A. Rosa** has been assigned by the Army to serve as assistant professor of air science and tactics at Manhattan College, New York City.
- S F. B. Satterthwaite** has accepted a position as manager of the Marketing Research Division of McCann-Erickson, Inc., in New York City.
- David R. Saunders** has accepted a position as research associate with the Educational Testing Service at Princeton, New Jersey. He will be primarily concerned with problems in the measurement of non-cognitive dimensions of individual difference.
- Riley C. Sprowls** has accepted a position as assistant professor of business statistics at the School of Business Administration at U.C.L.A.
- P. V. Sukhatme**, Chief of the Statistics Branch, Food and Agriculture Organization of the United Nations, will be visiting professor of statistics at Iowa State College during the spring quarter, beginning March 27, 1952. Dr. Sukhatme will give lectures in advanced survey sampling. Dr. Sukhatme was formerly statistical adviser to the Indian Council of Agricultural Research at New Delhi, India, and the lectures will be based on his research in sampling theory and applied sampling while he was employed by the Indian government.
- W Edward T. Weston** has completed three years of a four year program leading to a doctorate in clinical psychology. For his fourth and last year he has been assigned to the Veterans Administration Mental Hygiene Clinic in Kansas City, Mo.
- Howard Wiener** has recently been appointed to the Research Department of Warwick and Legler, Inc., an advertising agency in New York City.

CHAPTER NOTES

CONNECTICUT

The November meeting was devoted to a discussion of "Statistical Problems in Alcohol Studies" by S. D. Bacon of the Department of Sociology of Alcohol Studies at Yale University.

DENVER

The October meeting heard James A. Hall of the Department of Instruction of the Denver Public Schools speak on "The Function of Statistics in the Testing Program of the Denver Schools".

DETROIT

The first Fall Meeting of the Detroit Chapter was held on October 10th at the Wayne University Student Center Building. Gerhard Tintner spoke on "Scope and Methods of Econometrics."

The November meeting was held in Ann Arbor where Kurt Benjamin, Vice President of the Chapter, spoke on "Application of Punch Card Methods to Statistical Analyses".

LOS ANGELES

The first dinner meeting of the Los Angeles Chapter was held in September. Harry Romig of Hughes Aircraft Corporation spoke on "What Industry Expects in the Training of Statisticians". Paul Hoel gave the other side of the picture in his discussion of "What the University is Offering in the Training of Statisticians".

The Chapter hopes to hold regular monthly meetings during the 1951-1952 season.

NEW YORK

The New York Area Chapter has had four meetings in the past month. On October 23rd, Professor L. Moses of Columbia University spoke to the Statistical Techniques Division on the subject of Non-parametric Methods. The following evening, the Social Statistics Division held its first meeting of the season. A panel consisting of Mr. H. H. Hem-

mings of Metropolitan Life Insurance Co., Mr. H. Cohen of the Department of City Planning and Mr. C. Y. Glock of the Bureau of Applied Social Research considered the problems of local area statistics. The Biostatistics and the Statistical Techniques Divisions heard Dr. D. Mainland discuss his statistical experiences with medical problems. The Business and Economics Division started its season with a meeting at which Mr. L. C. Trueblood and Mr. G. Broida of the staff of the Board of Governors of the Federal Reserve System explained the impending revisions of the F.R.B. Index of Industrial Production.

Waite Brush was recently presented with a scroll from the A.S.A. members in the New York area in appreciation of his many years of unselfish service to this chapter.

Mr. L. Smith has replaced Mr. C. Haynie as chairman of the local membership committee.

PHILADELPHIA

The first dinner meeting of the 1951-1952 season was held in October. George W. Taylor, Professor of Industry at the University of Pennsylvania, spoke on "Current Wage Stabilization Problems". Dr. Taylor helped to organize and later served as Chairman of the Wage Stabilization Board. During World War II he was Chairman of the War Labor Board, and among other things was the author of the "Little Steel Formula".

The November meeting was held in conjunction with the Philadelphia Chapter of the American Marketing Association and consisted of two discussion meetings on the subject of operations research. The luncheon meeting was devoted to a non-technical resume of the scope of operations research and its uses in the field of marketing. Speakers were C. West Churchman of the Case Institute of Technology, and Wroe Alderson of Alderson & Sessions. The dinner meeting placed greater emphasis on the basic principles of operations research and its implications for sampling techniques and industrial management. The speakers were C. West Churchman and Arnold J. King of National Analysts, Inc.

SACRAMENTO

Officers of the Sacramento Statistical Association for 1951-52 are: President, Dr. George S. Roche, coordinator of manpower mobilization programs, California Department of Employment. Vice President, Mr. Sam Ososky, Senior Statistician, California Highway Planning Survey. Secretary-Treasurer, Mr. John B. Marshall, Senior Statistician, California State Board of Equalization. Council members, Mr. Irvin Ramseier, Statistician, California Youth Authority, Mr. Norman Rudy, Assistant Professor of Statistics, Sacramento State College, Mr. Arthur Morgan, Chief of Research and Statistics, California Department of Mental Hygiene.

At the September meeting, a discussion of the research under way in their offices was presented by Robert S. Billings, California, Division of Local Allocations; E. Philip Waren, California, Division of Water Resources; William Taggart, Maurice Strausz, and La Moine Christiansen, U. S. Bureau of Reclamation; and W. Stanley Young, California Division of Highways.

Mr. Norman Rudy presented a paper on the economics of sampling to the October meeting. The paper covered methods of finding the minimax action in a situation in which sampling cost, the cost of erroneous administrative decisions, and the probability of error in measuring the criterion for administrative action can be taken into account.

ST. LOUIS

The October meeting was devoted to a discussion of "Statistical Training Below the University Level" by Francis G. Cornell, Director of the Bureau of Educational Research at the University of Illinois. Dr. Cornell, formerly Chief Statistician of the U. S. Office of Education and Chief of the Educational Research Staff of the U. S. Senate Committee on Labor and Education, lead a panel discussion on the problems of teaching statistical appreciation in the elementary and secondary schools.

